**ZERO/THUNDER BOLT P-47/SPITFIRE/YAK-9D**

0.25-0.32 cu. in. displacement 2-stroke
Requires: 4-channel radio w/ 4 standard servos

<table>
<thead>
<tr>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing Span</td>
</tr>
<tr>
<td>Wing Area</td>
</tr>
<tr>
<td>Flying Weight</td>
</tr>
<tr>
<td>Fuselage Length</td>
</tr>
</tbody>
</table>

* Specifications are subject to change without notice.*

**Warning! This model is not a toy.**
It is designed for maximum performance. Please seek advice if one is not familiar with this kind of engine powered precision model. Operating this model without prior preparation may cause injuries. Remember, safety is the most important thing. Always keep this instruction manual at hand for quick reference.

THE WORLD MODELS MANUFACTURING CO., LTD.
FACTORY PRE-FABRICATED ALMOST-READY-TO-FLY (ARF) SERIES MADE IN CHINA
www.theworldmodels.com
BEFORE YOU BEGIN

1. Read through the manual before you begin, so that you can have an overall idea of what to do.

2. Check all parts. If you find any defective or missing parts contact your local dealer. Please DRY FIT and check for defects for all parts that will require CA or Epoxy for final assembly. Any parts you find to be defective after the gluing process may be difficult to remove for warranty replacement. The manufacturer will replace any defective parts, but will not extend to the parts that are good before gluing to defective parts during assembly. Warranty will not cover any parts modified by customer.

3. Symbols used throughout this instruction manual comprise of the following:

- **Apply epoxy glue.**
- **Apply instant glue** (C.A. glue, super glue.)
- **Apply thread locker**
- **Must be purchased separately!**
- **Assemble left and right sides the same way.**
- **Ensure smooth non-binding movement while assembling.**
- **Peel off shaded portion covering film.**
- **Cut off shaded portion.**
- **Drill holes with the specified diameter (here: 3mm).**
- **Pierce the shaded portion covering film.**
- **Pay close attention here!**
- **Warning!** Do not overlook this symbol!
Parts List

1. MAIN WING -- 1 pair
2. WING JOINER 77.5x23.8x5.8mm -- 1 pc.
   RING Ø2.3mm(For Aileron)--2 pcs
3. PLYWOOD 3x25x80mm(Wing Protection) -- 1 pc.
4. PLYWOOD 3x8x22mm(For Aileron Servo) -- 1 pc.
5. FUEL TUBE Ø6x5mm--4 pcs
   STRAPER --2 pcs
   CLEVIS--2 pcs
   PUSHROD Ø1.8x575mm w/ Threads(For Elevator Servo)-1 pc.
6. MAIN LANDING GEAR --1 set
   FUSELAGE --1 pc.
   MOUNTING PLATE 12x20mm --2 pcs
   SCREW PA3x10mm --4 pcs
7. MAIN WHEEL Ø45mm --2 pcs
   COLLAR Ø3.1mm/ set screw --2 pcs
8. STABILIZER & ELEVATOR --1 set
   SCREW PWA2.3x12mm --2 pcs
   TAIL LANDING GEAR --1 pc.
   MOUNTING PLATE PL4114015 --1 pc.
9. VERTICAL FIN & RUDDER --1 set
10. FUEL TANK 200cc -- 1 set
    BALSA 8x8x72.5mm(For Fuel Tank Position Fixing)--1 pc.
11. ENGINE MOUNT PL511-030 -- 1 set
    SOCKET HEAD SCREW M3x25mm --4 pcs
    WASHER d3xD7mm --4 pcs
12. SCREW PM3x25mm --4 pcs
    WASHER d3xD7mm --4 pcs
    M3 NUT --8 pcs
    THROTTLE PUSHWIRE Ø1.2x340mm -- 1 pc.
    PLASTIC TUBE d2xØ3x220mm --1 pc
13. COWLNG --1 pc
    TRANSPARENT 3D TEMPLATE --1 pc
    SPINNER Ø52mm --1 pc
    SILICON GROMMET d1.5x6.5mm(For Cowling) --4 pcs
    SCREW PWA2.6x12mm -- 4 pcs
14. SCREW PM2x12mm --2 pcs
    FUEL TUBE Ø5x6mm --1 pc.
    CLEVIS --1 pc.
    HORN --1 set
    PUSHROD Ø1.8x575mm w/ Threads(For Elevator Servo)-1 pc.
15. SCREW PA2x12mm --2 pcs
    FUEL TUBE Ø5x6mm --1 pc.
    CLEVIS --1 pc.
    HORN --1 set
    PUSHROD Ø1.8x575mm w/ Threads(For Elevator Servo)-1 pc.
16. PLYWOOD 3x77x119mm(For Fuselage Servo) --1 pc.
    BALSA 5x5x116mm(For Fuselage Servo) --1 pc.
17. LINKAGE CONNECTOR Ø2.1mm--1 set
18. FUEL TUBE Ø6x5mm --2 pcs
    STRAPER --2 pcs
    SPONGE 10x80x220mm --1 pc.
19. CANOPY--1 pc.
    SCREW PWA2.3x12mm --4 pcs
    SILICON GROMMET d1.5xD6.5mm --4 pcs
    PILOT PC001065B --1 pc.
20. SCREW PM3x25mm --2 pcs
    WASHER d3xD12mm --2 pcs
21. DECALS:
    A091DEC (For ZERO)
    A092DEC (For THUNDER BOLT P-47)
    A093DEC (For SPITFIRE)
    A094DEC (For YAK-9D)

- COVERING:--
  ZERO: LIGHTEX SGX 203 LIGHT GRAY
    LIGHTEX SGX 340 OLIVE DRAB
    LIGHTEX SGX 331 CUB YELLOW
    LIGHTEX SGX 311 FERRARI RED
  P-47: LIGHTEX SGX 203 LIGHT GRAY
    LIGHTEX SGX 311 FERRARI RED
    LIGHTEX SGX 331 CUB YELLOW
  SPITFIRE: LIGHTEX SGX 203 LIGHT GRAY
    LIGHTEX SGX 340 OLIVE DRAB
    LIGHTEX SGX 331 CUB YELLOW
  YAK-90: LIGHTEX SGX 203 LIGHT GRAY
    LIGHTEX SGX 240 GREEN
1 Aileron

- Apply instant type CA glue to both sides of each hinge.

2 Main Wing

- Peel off shaded portion covering film.
- Wing Joiner 77.5x23.8x5.8mm

**Warning!**

Please dry fit wing joiner into left and right wing to make sure they fit with the proper dihedral angle, mark the wing joiner if necessary. Apply epoxy glue to both sides of all surfaces in contact. Use a stick to apply the glue to inner side of wing joiner sleeve, and apply the glue to wing joiner before putting them together. Wing joiner not glued properly will lead to wing failure and plane crash.

3 Main Wing

- Peel off shaded portion covering film.
- Plywood 3x25x80mm

**Bottom View**
4 Aileron Servo

Plywood
3x8x22mm

1.5mm

Straper

Fuel Tube
Ø6x5mm -- 4pcs

Clevis Ring

5 Aileron Servo

6 Main Landing Gear

PA3 x 10mm Screw
4

PA3x10mm

Mounting Plate

2mm

Bottom View
7 Main Wheels

- Wheel Ø45mm
- 3mm Set Screw
- 3.1mm Collar

Temporary install the main wing, adjust leveling of the stabilizer to make it as parallel to the main wing as possible.

L/R • Bottom View

8 Stabilizer & Elevator

- PWA2.3 x 12mm Screw
- Mounting Plate

Apply instant type CA glue to both sides of each hinge.

Bottom View

9 Vertical Fin & Rudder

- Apply instant type CA glue to both sides of each hinge.

Bottom View
10 Fuel Tank

Blind nuts are off-centered to keep the spinner at the fuselage axis.

11 Engine Mount

Illustration is for upright mount. You can mount your engine inverted or sideways simply by rotating the engine mount without affecting the thrust angle.

12 Engine

![Diagram of engine mount and fuel tank]
13 Cowling

- Please refer to the attached sheet for usage of the transparent 3D template.
- First insert the grommet to the cowling then apply screw.

![Diagram with grommets and screws]

14 Rudder Pushrod

- Ø1mm pilot holes for World Models tri-horn are pre-drilled. Please look for pin-hole marks at under side of control surfaces.

![Diagram with pushrod and screws]

15 Elevator Pushrod

- Ø1mm pilot holes for World Models tri-horn are pre-drilled. Please look for pin-hole marks at under side of control surfaces.

![Diagram with pushrod and screws]
16 Rudder / Elevator Servo

Plywood 3x77x119mm
Balsa 5x5x116mm

Rudder / Elevator Pushrod Ø1.8x575mm

● Bottom View

17 Servo Set

3 x 3mm Set Screw 1
Linkage Connector 1
M2 Nut 1
2mm Washer 2

\! Please refer to attached sheet for linkage connector installation.

18 Radio Equipment

Install and arrange the servo as shown in the diagram.

Front
Fuel Tank 200cc
Throttle Pushwire
Receiver/ Battery
Sponge Sheet 10x80x200mm

Throttle Servo
Elevator Servo
Rudder Servo
Fuel Tube Ø6x5mm
Straper

● Bottom View
19 Canopy

- First insert the grommet to the canopy then apply screw.

20 Main Wing

21 Wing Setting

Adjust the wing and fuselage configuration as shown in the diagrams.
Adjust the control throws as shown in the diagram. These throws are good for general flying. You can adjust according to your personal preference.

---

The ideal C.G. position is 71mm (2.8 in) behind the leading edge measured at where the wing meets the fuselage. In order to obtain the C.G. specified, add weight to the fuselage or move the battery position. Check the C.G. before flying.

---

**Warning!**

**Important Safety Precautions**

# First time flyer should never fly by himself/herself. Assistance from experienced flyer is absolutely necessary.

# Pre-flight adjustment must be done before flying, it is very dangerous to fly a badly pre-adjusted aircraft.

# ZERO / THUNDER BOLT P4-47 / SPITFIRE / YAK-9D is specially designed to be powered by 2C0.25-0.32 engine, using a more powerful engine does not mean better performance. In fact, over powered engine may cause severe damage and injuries.

# Make sure the air field is spacious, never fly the plane too close to people and never get too close to a running propeller.

# If you find wrinkles on the covering as a result of weather changes, you can use hot iron to remove the wrinkles. Please begin with lower temperature setting and gradually raise the temperature until the wrinkles are gone. Too hot an iron may damage the covering. Don’t use hot iron near the seams or edges, hot iron will melt the glue and shrink the covering at the same time, causing the seams to pull away.

# Check and re-tighten up all factory assembled screws, use thread locker if necessary.
Usage of the transparent 3D template

This transparent 3D template is used for position guidance of the actual cutting of the pre-painted cowling.

Simply cut the transparent 3D template to fit your engine and exhaust pipe, then slide onto the actual cowling and use as template to mark the openings required for final cutting.
After fastening the round nut, make sure that the linkage connector can rotate freely.

Drill 2mm hole at servo horn.

Insert linkage connector into servo horn.

Make sure shoulder of screw is cleared from servo horn. Add washer to reduce play if necessary.

Tighten up the round nut against the shoulder. Apply CA or permanent thread locker.

After fastening the round nut, make sure that the linkage connector can rotate freely.
Product Registration Form (US Customers)

We would like to share with you any relevant information regarding your model, including product news and free upgrade parts when applicable. Please fill in the following and send to AirBorne Models, 2403 Research Drive, Livermore, CA 94550 USA.

1. Name: ____________________________________________

2. Address: __________________________________________

3. Phone #: __________________ E-mail: ________________

4. Model: __________________________________________
   Wing QC# __________ Fuselage QC# _________________
   (QC numbers are stamped on wing and fuselage)

5. Date of Purchase: _________________________________

6. Store Name: _____________________________________

Please call AirBorne Models at 925 371 0922 for any assistance in filling this form. Thank you very much for purchasing our product.
The World Models

Ducted Fan
Warbirds
Scale
Sports
Trainer

Pattern
Funfly
Electric
Glider
Boat

Accessories
Covering
(Lightex / Toughlon)

http://www.theworldmodels.com